AMENDMENTS TO THE CLAIMS:

Please amend the claims (as amended during International Preliminary Examination) as follows:

1. (Currently Amended) Transmission spectrometer ~~with~~ comprising a sensor to which, through at least one optical waveguide for emitted radiation, the radiation of at least one radiation source can be introduced, in order to direct it on and/or in an object to be investigated, and with an optical waveguide for detected radiation ~~at a distance~~ spaced from the sensor, through which radiation, which was scattered by, transmitted by and/or emitted by the object to be investigated~~, especially fluorescent radiation,~~ can be introduced to a radiation detector~~, which can be~~ connected to an evaluation unit, ~~where~~ the transmission spectrometer further comprising

a ~~number~~ plurality of radiation sources ~~are provided~~, each having an adjustable ~~the~~ radiation ~~intensities of each one of which can be adjusted~~ intensity, and which have an emission spectrum which is broadband either per radiation source or for all radiation sources together, and each of which is coupled directly to an optical waveguide for emitted radiation,

the radiation detector ~~detects~~ detecting the entire spectrum of the radiation which is entered in the optical waveguide for detected radiation by diffuse and/or directional reflection, transmission, emission and/or fluorescence, and

in the evaluation unit, as a function of at least one program which can be selected through an operating unit for the calculation of at least one parameter, at least the intensity of one given wavelength can be processed, and the evaluation unit is in working connection with the radiation sources in such a way that, depending on the selected program, the intensity of the radiation emitted from each radiation source can

be adjusted individually, ~~especially through the current supplied to the radiation sources~~ and ~~the~~ wavelengths with ~~the~~ corresponding intensities, which arrive from the radiation detector to the evaluation unit, can be selected.

2. (Currently Amended) Reflection spectrometer ~~with~~ comprising a sensor to which, through at least one optical waveguide for emitted radiation, the radiation of at least one radiation source can be introduced, in order to direct it on and/or in an object to be investigated, and through which, with at least one optical waveguide for detected radiation, radiation, which was scattered by, transmitted by and/or emitted by the object to be investigated, ~~especially fluorescent radiation,~~ can be introduced to a radiation detector~~, which can be~~ connected to an evaluation unit, whereby at ~~the~~ a free end of the sensor, ~~the~~ a radiation coupling-in end of the optical waveguide for detected radiation is surrounded by ~~the~~ radiation coupling-out ends of the optical waveguides for emitted radiation, ~~preferably essentially in a circular manner,~~ so that in the measuring range on and/or in the object to be investigated, there is at least a partial overlap of the aperture of the optical waveguide for detected radiation with the aperture of the optical waveguide for emitted radiation, ~~characterized by the fact that~~ the radiation spectrometer further comprising

a ~~number~~ plurality of radiation sources ~~(10-15) are provided~~, each having an adjustable ~~the~~ radiation ~~intensities of each one of which can be adjusted~~ intensity, and which have an emission spectrum which is broadband either per radiation source ~~(10-15)~~ or for all radiation sources ~~(10-15)~~ together, and each of which is coupled directly to an optical waveguide for emitted radiation ~~(20-25)~~,

the radiation detector ~~(30) detects~~ detecting the entire spectrum of the radiation which is entered in the optical waveguide for detected radiation ~~(40)~~ by diffuse and/or directional reflection and/or fluorescence, and

in the evaluation unit ~~(50)~~, as a function of at least one program which can be selected through an operating unit for the calculation of at least one parameter, at least the intensity of one given wavelength can be processed and

the evaluation unit is in working connection with the radiation sources in such a way that, depending on the selected program, the intensity of the radiation emitted from each radiation source can be adjusted individually, ~~especially through the current supplied to the radiation sources~~ and wavelengths with ~~the~~ corresponding intensities, which arrive from the radiation detector to the evaluation unit can be selected.

3. (Currently Amended) Spectrometer according to Claim 1 ~~or 2~~, ~~characterized by the fact that~~ wherein the

radiation sources are selected from the group consisting of cold light sources and~~/or~~ semiconductors~~, preferably in the form of LEDs (10-15) or lasers~~.

4. (Currently Amended) Spectrometer according to ~~one of the previous claims~~ Claim 1, ~~characterized by the fact that~~ wherein the radiation sources ~~(10—15) are~~ all ~~emitting~~ emit equally ~~and~~ in ~~a broad band~~ broadband or at least partly differently ~~and are emitting~~ in a specified spectral region.

5. (Currently Amended) Spectrometer according to ~~one~~ of ~~Claims~~ Claim 1 ~~to 3~~, ~~characterized by the fact~~

~~that~~ wherein at least two radiation sources ~~are emitting~~ emit in different or not completely overlapping spectral regions~~, especially with different intensities~~.

6. (Currently Amended) Spectrometer according to Claim 4 ~~or 5~~, ~~characterized by the fact that~~ wherein the radiation sources include at least one radiation source ~~(10, 13)~~ for emitting red light, at least one radiation source ~~(11, 14)~~ for emitting blue light and at least one radiation source ~~(12, 15)~~ for emitting green light.

7. (Currently Amended) Spectrometer according to ~~one of the previous claims, characterized by the fact that~~ Claim 1, wherein the radiation detector includes an optical multi-channel detector, ~~especially a CCD detector (3) or a diode array~~.

8. (Currently Amended) Spectrometer according to ~~one of the previous claims, characterized by the fact that~~ Claim 1, wherein in the evaluation unit a number of individual spectra can be deposited in a time sequence, ~~especially can be stored,~~ and can be analyzed~~, especially with consideration of their time sequence~~.

9. (Currently Amended) Spectrometer according to Claim 8, ~~characterized by the fact that~~ wherein at least two, ~~especially all,~~ individual spectra can be received at intervals in the range of microseconds to seconds.

10. Currently Amended) Spectrometer according to ~~one of the previous claims, characterized by the fact that~~ Claim 1, wherein in the evaluation unit ~~(50)~~ signals from the radiation detector ~~(30)~~ can be resolved into a timewise constant and a timewise changeable, ~~especially pulsating,~~ component for separate evaluation.

11. (Currently Amended) Spectrometer according to ~~one of the previous claims, characterized by the fact that~~ Claim 1, wherein in the evaluation unit ~~(50)~~ programs are stored for at least one of food control~~, for the~~; determination of oxygen saturation and/or hemoglobin concentration in tissue~~, for the~~; control of the color, reflection and/or gloss properties of surfaces, dyes and/or paints~~, for~~; medical analysis~~, for~~; process analysis, and~~/or for~~ environmental analysis.

12. (Currently Amended) Spectrometer according to ~~one of the previous claims, characterized by the fact that~~ Claim 1, wherein the sensor is surrounded by an endoscope, the sensor ~~(2) has~~ having a housing separate from the radiation sources and the radiation detector and/or the sensor ~~(2)~~ can be handheld.

13. (Currently Amended) Spectrometer according to ~~one of the previous claims, characterized by the fact that~~ Claim 1, wherein at least one radiation source can be switched at least for one time period of a measurement in pulsed operation or can be operated with a multiplex pattern.

14. (Currently Amended) Spectrometer according to Claim 13, ~~characterized by the fact that~~ wherein at least two radiation sources in pulsed operation can be switched or each can be operated with an individual multiplex

pattern, where at least two radiation sources are emitting in different or in only partially overlapping spectral regions.

15. - 16. (Canceled)

17. (New) Spectrometer according to Claim 2 wherein the radiation sources are selected from the group consisting of cold light sources and semiconductors.

18. (New) Spectrometer according to Claim 2, wherein the radiation sources all emit equally in broadband or at least partly differently in a specified spectral region.

19. (New) Spectrometer according to of Claim 2, wherein at least two radiation sources emit in different or not completely overlapping spectral regions.

20. (New) Spectrometer according to Claim 19, wherein the radiation sources include at least one radiation source for emitting red light, at least one radiation source for emitting blue light and at least one radiation source for emitting green light.

21. (New) Spectrometer according to Claim 2, wherein the radiation detector includes an optical multi-channel detector.

22. (New) Spectrometer according to Claim 2, wherein in the evaluation unit a number of individual spectra can be deposited in a time sequence, and can be analyzed.

23. (New) Spectrometer according to Claim 22, wherein at least two, individual spectra can be received at intervals in the range of microseconds to seconds.

24. (New) Spectrometer according to Claim 2, wherein in the evaluation unit signals from the radiation detector can be resolved into a timewise constant and a timewise changeable, component for separate evaluation.

25. (New) Spectrometer according to Claim 2, wherein in the evaluation unit programs are stored for at least one of food control; determination of oxygen saturation and/or hemoglobin concentration in tissue; control of the color, reflection and/or gloss properties of surfaces, dyes and/or paints; medical analysis; process analysis, and environmental analysis.

26. (New) Spectrometer according to Claim 2, wherein the sensor is surrounded by an endoscope, the sensor having a housing separate from the radiation sources and the radiation detector and/or the sensor can be handheld.

27. (New) Spectrometer according to Claim 2, wherein at least one radiation source can be switched at least for one time period of a measurement in pulsed operation or can be operated with a multiplex pattern.

28. (New) Spectrometer according to Claim 27, wherein at least two radiation sources in pulsed operation can be switched or each can be operated with an individual multiplex pattern, where at least two radiation sources are emitting in different or in only partially overlapping spectral regions.